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DOCKET NO.: 220166US0

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF:

TOSHIO KOMATSU, ET AL:

SERIAL NO.: 10/091,314

FILED: MARCH 6, 2002

FOR: PHOTSENSITIVE COMPOSITION

:

: EXAMINER: A. C. WALKER

:

: GROUP ART UNIT: 1752

DECLARATION UNDER 37 C.F.R. §1.132

COMMISSIONER FOR PATENTS

ALEXANDRIA, VIRGINIA 22313

SIR:

Now comes TOSHIO KOMATSU who deposes and states:

1. That I am a graduate of Waseda University at Tokyo, Japan, and received a bachelorship in the year 1979.

2. That I have been employed by The Inctec Inc. for 25 years as a researcher in the field of the industrial chemistry.

3. That I understand the English language or, at least, that the contents of the Declaration were made clear to me prior to executing the same.

4. That the following experiment was carried out by me or under my direct supervision and control.

Experiment

5. The following experiments demonstrate the comparison of the photosensitivity of a photosensitive composition prepared by using a polyhydric alcohol or an ether according to this invention with the one of a photosensitive composition prepared by using ethanol or methanol in the cited references. The experiments described herein were performed by the method disclosed in this present application.

6. The preparation of a photosensitive composition prepared according to the method of this invention

H_2SO_4 , casein (10 parts) was suspended in water (88 parts). Borax (1 part) was added to the suspension, followed by stirring under heating at 80°C for 15 minutes in closed atmosphere to prepare a homogeneous aqueous casein solution. Ammonium bichromate (1 part) was added to the thus-obtained aqueous casein solution, and the resulting mixture was thoroughly stirred into an aqueous solution. To the aqueous solution propylene glycol (1 part) as a polyhydric alcohol or ethylene glycol monomethyl ether (1 part) as an ether was added. The mixture was thoroughly stirred into a homogeneous mixture to prepare a photosensitive composition of this invention.

7. The preparation of a photosensitive composition by using ethanol or methanol in the cited references.

Methanol or ethanol was used instead of propylene glycol or ethylene glycol monomethyl ether in the above 6; the other components and conditions for the preparation were the same as the above 6.

8. The preparation of a resist film on a metal substrate

Using the above photosensitive composition of the above 6 or 7, degreased metal substrates (64%Fe-36%Ni, $150\ \mu\text{m}$) were coated by a spin coater to give a dry film thickness of $5\ \mu\text{m}$, and using a hot-air dryer, water was caused to evaporate in a

atmosphere of from 50 to 90 °C to such an extent that no tack remained on the coating; thereby preparing resist films. With respect to the individual resist films, their sensitivities were ranked by the following measuring method.

9. The method for measuring sensitivity (exposure)

The resist film on each metal substrate was exposed by an extra-high pressure mercury vapor lamp (365 nm) through a "Kodak Photographic Step Tablet No. 2" (density 0.05 to 3.05, number of steps: 21) to determine an exposure required to allow Step 5 remain after the exposure process. The ranking results are shown in Table 1.

Table 1

| | Photosensitive compositions | | | |
|--|---|---------|--|----------------------------------|
| | Cited references (methanol or ethanol) | | This invention (a polyhydric alcohol or an ether) | |
| | Methanol | Ethanol | Propylene glycol | Ethylene glycol monomethyl ether |
| Exposure to step 5 as step sensitivity (mJ/cm ²) | 8,000 | 8,000 | 3,000 | 2,000 |

10. As shown in Table 1, the photosensitive composition using a polyhydric alcohol or an ether according to the invention is recognized to be higher in the photosensitivity than the photosensitive composition prepared by using methanol or ethanol.

11. The undersigned petitioner declares further that all statements made herein on his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

12. Further deponent saith not.

Toshio Komatsu

Signature TOSHIO KOMATSU

June 22, 2004

Date June 22, 2004